#### Before the

#### **Federal Communications Commission**

Washington, D.C. 20554

In the Matter of	)	
Modernizing the FCC Form 477	)	WC Docket No. 11-10
Data Program	)	
	)	

COMMENTS OF CONNECTED NATION, INC.

J. Brent Legg Vice President, Government Affairs Connected Nation, Inc. blegg@connectednation.org (202) 340-6446

#### **SUMMARY**

Connected Nation, Inc. (CN) is a national non-profit with a sixteen-year history of working to close the Digital Divide across the United States. We commend the Commission's efforts to take a focused look at the Form 477 data collection process in an effort to accurately inform policymaking. Since 2004, we have mapped broadband coverage in 17 states and Puerto Rico, assisted the Universal Service Administration Company (USAC) in analysis and validation efforts for Phase I of the Mobility Fund, completed mobile drive testing and analysis for the Ohio Department of Transportation, continued to map and validate broadband coverage for a number of states, even after the FCC began collecting broadband deployment data in the Form 477 in 2014, and worked with hundreds of local communities on technology action plans focusing on the access, adoption, and use of broadband, particularly in rural areas. Additionally, we were selected as the designated entity or subcontractor for 12 states and Puerto Rico during the State Broadband Initiative (SBI) grant program that ran from 2010 through 2014 and was administered by the National Telecommunications and Information Administration (NTIA). During this program, we routinely interacted with well over 1,200 broadband providers, garnering a great understanding of the challenges related to data collection. In these endeavors, several of our broadband mapping and field validation methodologies were reviewed and recognized as best practices by the NTIA. Furthermore, we have extensively highlighted and amplified federal broadband policy happenings in a way to engage more communities and broadband providers, including our partnership with 7 of the 14 winning Lifeline pilots in 2012.

In Section I of these Comments, we outline the need for a modernized approach to data collection based on our years of experience in collecting, analyzing, mapping, and validating

broadband data across 17 states and the Commonwealth of Puerto Rico. We call for the creation of a single, neutral, third party clearinghouse for the collection of broadband data to ensure sufficient data quality and granularity, protect proprietary and confidential infrastructure and subscriber location information, streamline the reporting process for providers, and ensure that consistent mechanisms are in place to audit and validate the data. This clearinghouse would have the responsibility for carrying out broadband data collection and analysis; mapping of broadband availability, platforms, and speeds using GIS; tracking where federal investments have been made to improve access; and processing feedback submitted by consumers to ensure continual refinement of the maps. The establishment of such a clearinghouse will serve the public interest by informing federal decision-making on infrastructure investments, ensuring accountability for those dollars as they are spent, and protecting sensitive provider data all at the same time.

In Sections II, III, and IV of these Comments, we make specific recommendations on Form 477's mobile services, fixed services, and other services respectively. Particularly focusing on the need for greater granularity, our comments aim to address the need for better data representation in rural areas with the understanding that a large purpose of Form 477 is to guide policy to encourage rural, unserved, and underserved broadband build-out.

We believe a modernized data collection approach that improves the granularity and accuracy of the data reported is simply good government. As the FCC continues its meaningful efforts to close the Digital Divide, particularly in rural America, we appreciate the opportunity to offer feedback on this vital issue – because everyone belongs in a Connected Nation.

<sup>&</sup>lt;sup>1</sup> Alaska, Colorado, Florida, Iowa, Illinois, Kansas, Kentucky, Michigan, Minnesota, North Carolina, Nevada, Ohio, Pennsylvania, Puerto Rico, South Carolina, Tennessee, Texas, and West Virginia.

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#### COMMENTS OF CONNECTED NATION, INC.

Connected Nation, Inc., a national non-profit organization with a sixteen-year history of working to close the Digital Divide across the United States, commends the Commission's proposal to modernize the Form 477 data program. We believe that accurate, robust, and reliable data is key to policymaking, as it enables the targeted investment of federal, state, and local funding to promote broadband build-out in unserved and underserved areas.

Our organization works both at the community and state level to increase broadband access, adoption, and use through a variety of programs and initiatives. In the course of our work, we have engaged hundreds of communities, helped thousands of local, public, and private stakeholders establish broadband technology actions plans, studied broadband availability and adoption in 17 states and the Commonwealth of Puerto Rico, provided digital literacy skills training to tens of thousands of individuals, trained and placed hundreds of unemployed and atrisk individuals in jobs made possible by technology, and delivered thousands of computers to disadvantaged youth. We are committed to bringing better connectivity and all that it enables to all Americans regardless of location. Everyone belongs in a Connected Nation.

As the largest single grantee in the Department of Commerce's State Broadband Initiative (SBI) program, Connected Nation managed broadband mapping and planning projects for 42% of the U.S. landmass and gained invaluable experience and knowledge regarding the issues facing rural America and providers alike. Our mapping and data validation techniques have been widely recognized as best practices by the NTIA, the FCC, and others.

Most recently, we have been working with USAC to analyze and validate mobile wireless availability as part of Phase I of the Mobility Fund. CN first works to analyze carrier-submitted drive test data to determine the level of mobile coverage now available to previously unserved and underserved areas based on set key performance indicator (KPI) thresholds; if/after the analysis shows a sufficient level of service, we then conduct drive testing in the area independently, to confirm the presence of the required KPIs for consumer benefit. To date, we have successfully conducted mobile drive testing in 27 states and the Northern Mariana Islands to ensure that coverage is accurate as reported by mobile carriers.

Connected Nation has also worked with the Ohio Department of Transportation (ODOT) to conduct mobile drive testing and analysis on networks in select rural counties to determine the gaps in service at required speed thresholds and to create a road-level map of mobile broadband coverage among the four major mobile providers (AT&T, Verizon, T-Mobile, and Sprint).

Additional analysis of the unserved and underserved areas, in combination with location analysis of available ODOT assets, helps show where the impact of expansion could be the most significant.

We agree with Chairman Pai when he said, "Maintaining updated and accurate data about broadband deployment is critical to bridging the Digital Divide. It lets us target our efforts to those areas that most need it. And it allows us to measure our progress in bringing digital

opportunity to all Americans."<sup>2</sup> Furthermore, as Commissioner Clyburn assessed, ". . . the Commission's data on broadband availability, does not accurately reflect the realities on the ground."<sup>3</sup> As such, we put forth several recommendations, based on our extensive experience, for various approaches to improve the data collection techniques deployed.

In Section I of these Comments, Connected Nation strongly agrees with the Commission's efforts to modernize the Form 477 data program and discuss the need for quality and robust broadband data. Based on CN's vast experience performing both desktop and field validation as well as its work in unserved, rural communities, Connected Nation believes the establishment of a single, neutral, third-party clearinghouse for data collection would be tremendously effective as an effort to increase data collection at greater granularity, while ensuring the burden on providers to submit the information is never too great.

In Section II of these Comments, we address the various questions outlined in the *Notice* as they relate to mobile broadband services. Section III of these Comments discusses the *Notice's* inquiries in respect to fixed services, with a focus on improving the granularity at which the data is collected. Lastly, Section IV addresses the *Notice's* referenced "Other Services."

With more reliable data, the Commission will continue its important work of connecting the most disconnected, while working with policymakers, regulators, and communities alike to close the Digital Divide, particularly in rural America.

<sup>&</sup>lt;sup>2</sup> http://transition.fcc.gov/Daily Releases/Daily Business/2017/db0804/FCC-17-103A2.pdf

http://transition.fcc.gov/Daily Releases/Daily Business/2017/db0804/FCC-17-103A3.pdf

## I. THE COMMISSION SHOULD MODERNIZE DATA COLLECTION FOR EFFECTIVE POLICYMAKING

Reliable broadband data is a matter of critical importance to residents, businesses, and community anchor institutions in areas where robust broadband is lacking, as any good dataset, and corresponding map, should give voice to those who find themselves on the other side of the Digital Divide by prioritizing the closing of those gaps. As such, we strongly support accurate and granular broadband data collection for three reasons:

- To inform better decision-making on where public resources should be invested to support broadband build-out;
- 2) To avoid potential overbuild situations where service may already be available at a comparable speed and cost; and
- 3) To ensure accountability for the ratepayer and taxpayer dollars once public investments have been made.

As the largest single grantee under the Department of Commerce's SBI program, Connected Nation has documented a number of lessons learned from years of data collection and mapping. These experiences are important to outline in these Comments as we link historical data collection to today's current Form 477 data program.

Throughout the SBI Program, we averaged provider participation rates of 95% across the states where we served as the program's designated entity or subcontractor, despite the fact that this program was largely voluntary. This positive result was primarily due to the emphasis placed on provider relationship-building, as well as willingness to accept information in whatever format it was available and to assist providers who needed help. By 2014, Connected Nation had established data-sharing relationships with more than 1,200 broadband service providers of all

sizes, with non-disclosure agreements in place with many of them to ensure protection of their proprietary and confidential information.

While our efforts were highly successful, the SBI program as a whole faced a number of challenges. Since every state had its own mapping agency or third-party partner, this meant that multiple methodologies were employed in collecting provider information, processing and analyzing the data, and mapping the results. This also meant that providers, many of whom operate in more than one state, had to juggle not only multiple points of contact and data requests, but they had to report their information in varying ways to satisfy those requests. Additionally, known best practices, such as those Connected Nation developed to represent mobile and fixed wireless coverage propagation, were not required to be adopted across all states. For example, fixed wireless coverage in some states continued to be represented as full circles or drastic polygons that did not reflect the true coverage on the ground. Unfortunately, some of these inaccuracies persist even today in the Form 477 data being submitted to the FCC.

As the SBI program transitioned to the Form 477 filing process in October 2014, we began mapping and refining this data for state partners that had chosen to continue their mapping programs. Unfortunately, a number of Form 477 challenges remain:

1) Form 477 requires providers to report census blocks where they provide service.
Unfortunately, if even one household in a given block is served, the entire block is considered as having service, resulting in a significant overstatement of availability.
This is particularly problematic in rural areas where census blocks can be very large—some being larger than the entire state of Connecticut. Yet these are the areas where broadband availability is most lacking and needs to be most accurately defined.

- 2) Since some providers rely on third-party vendors to compile Form 477 data and the filings are primarily in .csv (comma-separated values) format, providers that do not have GIS (geographic information system) capabilities have no way of visualizing their service territories to ensure accuracy, resulting in overstated and understated reporting.
- 3) Some known providers from the SBI years are simply missing from the Form 477 datasets, meaning that they are likely not filing as required.
- 4) Fixed wireless coverage during the SBI years (when properly mapped) was developed from propagation modeling based on tower locations, predicted signal levels, and other technical parameters. Under Form 477, however, fixed wireless coverage is reported by census block as any other type of fixed service, indicating areas as served where there may actually be no service for miles.

Missing data and inaccurate filings also may have the effect of understating service capabilities, putting the providers themselves at risk for overbuild, since Form 477 data is now used to direct federal subsidies toward areas lacking robust broadband.

Taking into consideration these lessons learned, we recommend the following:

First, any future mapping effort must prioritize the accuracy and granularity of the maps themselves to ensure that the nation's broadband landscape is fully understood at the street address or parcel level of detail. Census block data is not sufficiently granular as we look to solve the broadband gap in rural and other insular areas of the United States.

Second, that level of granularity requires the protection of providers' proprietary and confidential information. Such protection is needed to safeguard critical infrastructure from

vandalism, sabotage, or worse, and to preserve the confidentiality of competitively sensitive infrastructure and subscriber information, which should remain closely held.

Third, any future mapping effort must be premised on a uniform reporting mechanism to eliminate inconsistencies in state-by-state reporting. That uniformity in reporting will provide decision-makers the high level of confidence needed to target federal funding for broadband deployment projects.

As the Commission considers improvements to Form 477, we believe there should be consideration of a establishing a single, independent, third-party clearinghouse for broadband data collection and mapping that is accountable to Congress, the FCC, the public, and the provider community, that covers all 50 states, the 5 inhabited U.S. territories, and the District of Columbia. This clearinghouse would have responsibility for carrying out four primary tasks:

- 1) Broadband data collection and analysis, working with the provider community through a rigorous non-disclosure agreement framework;
- 2) GIS-based mapping of broadband availability and speeds, produced from infrastructure and subscriber data submitted by the providers;
- 3) Field validation and audits of the maps once they are produced; and
- Processing feedback submitted by consumers to ensure continual refinement of the maps.

To be clear, we believe that broadband service providers have a reasonable expectation that their proprietary and competitively sensitive infrastructure and subscriber data should be protected from disclosure. The good news is that the public disclosure of such information isn't necessary to serve the public interest. Instead, that information could be protected and analyzed by a single non-government clearinghouse entity to derive broadband coverage and speed

capabilities without revealing the more sensitive characteristics of any given network. A neutral, third-party aggregator of infrastructure data can both hold that information tightly and produce accurate and granular coverage maps from it—maps that are much more accurate than the current Form 477 process yields.

Another important function that a clearinghouse entity should play is on-the-ground field validation of coverage in geographic areas that warrant additional scrutiny, as well as areas where federal dollars are being invested to build out new infrastructure. This should involve the deployment of network engineers to visit communities, visually inspect infrastructure assets (e.g. outside plant, towers, pedestals, DSLAMs, central offices, etc.), conduct drive-testing of fixed and/or mobile wireless networks, and make coverage adjustments to the maps accordingly. The public should also play an important role in providing feedback on the map, and their feedback should be used to both engage providers in refining coverage depictions and help to determine where field audits should take place.

To add to these recommendations, Connected Nation responds to the following questions in the Notice.

#### II. MOBILE SERVICES (NOTICE, SECTION III.A.)

Connected Nation has extensive experience working with the nation's mobile service providers. Some staff members have previously served as engineers for the providers themselves, in some cases regularly contributing to the filing of Form 477 as required by the FCC. They possess significant experience using predictive radio frequency propagation and link budget models using software such as EDX, CelPlan, and others; throughout the SBI Program, they routinely created propagation models for small- to mid-size mobile carriers that required data submission

assistance. More recently, our engineers have worked directly with the Commission and USAC staff to interpret propagation models submitted by MF-I awardees and utilize such data as a mechanism for comparison to assess mobile drive test results. Based on this experience, we recommend the following actions in response to the Notice's questions.

A. The Commission should develop a standardized methodology for collecting and reporting data that will allow for meaningful comparison of mobile service (Notice, Section III.A.1.)

We believe that, by standardizing the methodologies for which data is collected and reported, Form 477 data can hope to achieve a greater level of reliability and consistency.

We strongly recommend that any future mapping effort be based on a uniform reporting mechanism to eliminate reporting inconsistencies. Such uniformity will better provide decision-makers the high level of confidence needed to target federal funding to broadband deployment projects. Further, specific recommendations include:

1. The FCC should make minimum advertised/expected speeds publicly available while disclosing the methodologies used by providers ( $\P$  11)

We agree with the Commission's *Public* Notice from March 29, 2017<sup>4</sup> when the case was made for releasing minimum advertised or expected 4G LTE speed data from a window of Form 477 filings. The Notice stated that "[m]aking these data available to the public will provide service providers, states, and experts with the opportunity to review and evaluate the data independently to ensure the accuracy of the information. Further, with respect to minimum advertised speeds, because it is advertised by service providers, much or all of that information is already available to the public. The public interest in providing such speed information would substantially outweigh any potential competitive harms to the providers in maintaining its

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<sup>&</sup>lt;sup>4</sup> https://apps.fcc.gov/edocs\_public/attachmatch/DA-17-286A1.pdf

confidentiality." While the Notice made this case in reference to a Mobility Fund II challenge process, we believe the rationale holds true universally. Releasing speed data can aid in ensuring greater accuracy of the information, but at minimal cost to providers.

2. The Commission should require filers to use specified predictive propagation models to prepare their Form 477 deployment filings ( $\P\P$  12-13)

To allow for more meaningful comparisons among providers' datasets, we believe the Commission should set an agreed upon set of propagation models for 4G LTE and later generation technologies but not limit this to only 4G and beyond technologies. Each carrier should submit, in addition to a certified propagation model, a ReadMe.txt file that explains each of the variables that were used in the development of the model. As the Commission examines speeds available by platform, it is important to understand all services that are available. For rural America, this is especially important to understand since some areas may still only have access to 2G or 3G services.

In analyzing what input parameters may be used, our experience has shown that since propagation models are commonly based on an outdoor signal penetration model (especially when predicting throughput speeds), a reasonable approach may be reducing the mobile drive testing speeds (in vehicle) by one order of magnitude as a realistic parameter.

Keeping in mind the implications these requirements may have on providers, as discussed above, we believe that placing an independent, third-party clearinghouse in charge of administering the data collection process may foster a collaborative environment where both the Clearinghouse and service providers are incentivized and motivated (albeit for different reasons)

to ensure accuracy and continual refinement of the predictive propagation models that are produced.

3. The Commission should require on-the-ground data as part of any Form 477 data collection (¶ 14)

Connected Nation has spent countless hours validating mobile and fixed services across the country, from Alaska to Maine, from Puerto Rico to the Northern Mariana Islands, and from Texas to the Canadian border. Based on our experiences, we believe on-the-ground data verification is crucial to gathering both qualitative and quantitative information about the state of mobile broadband. As mobile carriers conduct their own drive testing, on-the-ground verification may allow carriers' predictive propagation models to be further refined vis-à-vis network optimization. Often, carriers have this data readily available, and, if they do not, it is not overly burdensome or cost prohibitive to obtain.

B. The Commission should not eliminate the requirement that mobile broadband providers report coverage information for each technology deployed in their networks; however, the Commission should eliminate the requirement to submit mobile broadband service availability data, since it does not produce accurate service information. (Notice, Section III.A.2)

In order to better analyze all inbound data, the requirement to report coverage information by technology type should remain intact. This is not a cost- or time-prohibitive exercise for mobile carriers to supply, based on our experience, and it is helpful in understanding mobile coverage for policymaking purposes in the future. With that in mind, however, we agree with the Notice that "mobile broadband service availability data that providers submit generally do not reflect their local retail presence." Due to this fact, we recommend eliminating the requirement to submit mobile broadband service availability data indicating retail presence.

C. The Commission should not require mobile providers to report subscribership data according to billing address, as the billing addresses do not reflect where mobile devices and services are used most frequently; and the Commission should not rely on subscribers' billing addresses to sufficiently show the areas in which subscribers use their mobile wireless devices (Notice, Section III.A.4)

While we commend the Commission's efforts to gain insights from subscribership data, we believe that a billing address data collection requirement would not yield useful or reliable information. Based on our experience, billing addresses often do not reflect where mobile services are actually being consumed. For example, many businesses provide their employees with mobile phones, and the billing address used for the master account would likely be the business's headquarters address, even though their employees in many cases live in and/or travel to other cities and states. On the consumer side, many mobile service providers are making discounts available for multi-line family sharing accounts, and as a result, a market trend is emerging where multiple households are aggregating buying power to receive larger multi-line discounts—a scenario that would not be accurately reflected by the account's single billing address. Additionally, post office boxes and multi-tenant dwelling unit addresses would prevent any desired spatial analysis of the address data from being completed in a meaningful way. Therefore, we believe that the collection of billing addresses would not yield useful information in understanding mobile service availability, and it should be considered a non-essential item for a carrier reporting.

#### III. FIXED SERVICES (NOTICE, SECTION III.B.)

Despite funding for NTIA's SBI Program coming to an end in 2014, Connected Nation has continued mapping broadband availability in a number of states. In the process of analyzing Form 477 data as part of these ongoing mapping efforts, we have noted that a number of

providers are missing from the Form 477 dataset, as well as other inconsistencies. Also, since some providers rely on third-party vendors to compile their Form 477 filings, and the prepared data is often returned to them in .csv format, many smaller providers that do not have internal GIS capabilities have no way of visualizing their service territories from a .csv file to ensure accuracy of the data. We know from firsthand experience that this often results in overstated or understated reporting. We believe the FCC must take action to ensure that all providers are filing as required and that smaller providers have access to a mechanism to visualize their service territories before validating their Form 477 filing. We believe this could and should be a responsibility of the Broadband Data Clearinghouse described above. Other specific recommendations include:

# A. The Commission should not eliminate the separate reporting of business/enterprise/government fixed broadband data (Notice, Section III.B.1.a.)

We do not agree that the FCC should eliminate separate reporting for business broadband services. While there are several providers who offer the same maximum speeds for both residential and business customers, our experience in analyzing availability data from more than 1,200 service providers suggests there are many more areas where the offerings are different—particularly in rural areas. If separate reporting were to be eliminated, this could greatly skew the understanding of what services are available for residential customers.

Additionally, in the cases where there are business-only providers that do not serve residential customers at all, broadband availability data could be further misinterpreted to conclude that service is available to everyone when in fact it is not. We believe that a dichotomy of residential and business services and speeds is essential; anything else would be detrimental to an understanding of which households are actually in the Digital Divide.

B. Requiring fixed broadband providers to indicate whether additional customers could be added in each census block listed when reporting deployment data may be burdensome and challenging to collect (Notice, Section III.B.1.b.)

While reporting the ability to serve additional customers in a given census block could be interesting information to examine, we believe that the requirement to do so would be overly burdensome on providers of all types and sizes due to the constantly changing nature of each providers' network, existing subscribership, and corresponding data. Additionally, the variances among state regulatory requirements (e.g., carrier of last resort) could result in complications in collecting the information, and since some states no longer regulate carriers at all, the providers in those states may not have the data at all.

C. The Commission should increase the granularity of data that the FCC collects to the street address or land parcel level of detail (Notice, Section III.B.1.c.)

While we acknowledge the Notice's concern that "the administrative and data-quality challenges to collecting data below the census-block level likely would make such an endeavor impractical," we believe increased granularity of provider-submitted data, and the analyses and mapping of it, is of critical importance to closing the Digital Divide in the United States. As previously mentioned, we have found that provider reporting at the census block level of detail does not result in an accurate understanding of where unserved and underserved areas exists, particularly in rural areas where census blocks can be very large. There are over 3,200 census blocks in the United States that are larger than the District of Columbia, and eight blocks that are larger than the entire state of Connecticut. Yet these rural areas are where broadband service is most lacking and needs to be most accurately defined. We strongly recommend that Congress and/or the Commission should take steps immediately to prioritize a more granular understanding of broadband service availability at the street address or land parcel level of detail.

As mentioned above, we believe that the creation of a neutral, independent, third-party clearinghouse for the collection, analyses, mapping, and validation of broadband data would solve a myriad of issues with regard to achieving a more granular understanding of broadband availability. Based on our extensive experience working with providers on a sub-census block level during and after NTIA's SBI mapping program, we know that street-level depictions of service availability can only be achieved through the analysis of actual broadband infrastructure and subscriber location data, which providers rightfully deem as proprietary and confidential and are therefore reluctant to supply to a government entity. However, if such data could be held confidentially by a third-party entity through a rigorous non-disclosure agreement framework, the third-party entity, such as the proposed clearinghouse, could conduct an analysis of the data that would yield polygonal depictions of service availability, speed, platform type, and provider name—all of which could be publicly disclosed—without exposing the more sensitive underlying data that was used to create the depictions.

We believe this approach would be a commonsense path forward to finally achieving a far more specific understanding of service availability than has ever been possible before. It would provide a pathway for smaller providers to more accurately generate depictions of their service capabilities, and it would provide the federal government a mechanism for conducting field validation of reported information, tracking where Universal Service Fund (USF) dollars have resulted in infrastructure buildout, and receiving public input to continually refine a relaunched National Broadband Map.

1. The Commission should collect data at a level of greater granularity than the census block level and require providers to submit data in a geospatial format (e.g. shapefiles) (¶¶ 36-38)

As stated, we support the collection of broadband data at a greater level of granularity than the census block level. As we have extensive experience in collecting, processing, and mapping data more granular than census blocks, we have seen first-hand how Form 477 data can be unreliable, especially for extremely large rural blocks as described above. Through Connected Nation's extensive broadband mapping experience independent of the Form 477 data collection, significant comparisons between the sub-census block level granular data and the Form 477 data have been completed, including a methodology that analyzes the Form 477 data and creates a confidence rating to show the level of confidence in which a reported census block has service available to all locations in that block. The analysis has shown that there is much less confidence in the accuracy of the data in rural areas where census blocks can be very large.

Additionally, we believe that it is a worthwhile goal for broadband data to be submitted as geospatial data (e.g., shapefiles). Reporting in this manner would most certainly increase the accuracy and specificity of the data, as providers would be able to visually confirm their service areas before submitting, rather than assuming (sometimes incorrectly) that the census block ID list in the .csv format is accurate and fully complete. Unfortunately, as noted above, a significant portion of service providers do not have GIS capabilities and do not have their service area files saved in a geospatial format. Thus, the requirement to submit information in geospatial format would result in a significant financial and logistical burden being placed on many providers—requiring them to either build a GIS division internally or contract the work to an outside vendor. In these instances, we believe the establishment of a third-party broadband data clearinghouse

would yield a viable solution to this problem, as it could provide direct assistance to service providers that need help creating geospatial depictions of their service territories.

Finally, we believe that a wholesale revision to the data collection and submission process should include an end to the current practice of assuming that an entire census block is served if a provider reports available service to just one household in that block. This is the most significant reason why data collection at the census block level of detail should not continue. It unfairly represents coverage, especially in rural areas, and in many cases misdirects USF subsidies away from areas that actually need such support, perpetuating the Digital Divide in the process.

2. The Commission should not require providers to submit address level data directly to the Commission, as doing so would put proprietary and confidential information at increased risk of disclosure and would be overly burdensome for some providers without GIS capabilities. Reporting by street segment would also miss the mark on accurately depicting homes with and without access to broadband services (¶¶ 39-42)

We believe that requiring providers to report data at the address level would be a significant burden for providers, as it would require an internal GIS analysis of its infrastructure and subscriber data prior to submission. As mentioned above in greater detail, many smaller service providers simply do not have this capability. There are several vendors that geocode subscriber data for Form 477 subscription filings because some providers cannot handle it with their available resources and lack of geospatial software/expertise. We agree that the costs of geocoding lists of serviceable addresses would be a potentially prohibitive burden; however, once the baseline of addresses is established, processing updates for newly served addresses would be much more efficient as they come online. In working with a national broadband data

clearinghouse, rather than requiring providers to submit an entirely new dataset every six months, the clearinghouse could efficiently work with providers and their previously submitted baseline data to update coverage accordingly. The clearinghouse's oversight of this process can reduce burdens on providers and make the data and mapping process more efficient and accurate, especially in highlighting areas that continue to be unserved and underserved.

With regard to a potential street segment approach, we believe that, while it would yield a more granular understanding of service availability in comparison to census block reporting, doing so would still restrict the accurate calculation of homes with and without broadband service.

## 3. The Commission should establish a single, independent, third-party clearinghouse for broadband data collection ( $\P$ 44)

In seeking to understand how to overcome the challenges identified in collecting subcensus block data, we reiterate our belief that a single, independent, third-party clearinghouse for
broadband data would solve a myriad of issues outlined in this Notice. Establishing such a
clearinghouse for broadband data collection and mapping that is accountable to Congress, the
FCC, the public, and the provider community, would allow for adequate data collection and
mapping to cover all 50 states, the 5 inhabited U.S. territories, and the District of Columbia. This
clearinghouse would have responsibility for carrying out four primary tasks:

- Broadband data collection and analysis, working with the provider community through a rigorous non-disclosure agreement framework;
- 2) GIS mapping of broadband availability and speeds, produced from infrastructure and subscriber data submitted by the providers;
- 3) Field validation and audits of the maps once they are produced; and

4) Processing feedback submitted by consumers to ensure continual refinement of the maps.

As stated in Section I of our Comments, we believe that broadband service providers have a reasonable expectation that their proprietary and competitively sensitive infrastructure and subscriber data should be protected from disclosure. The good news is that the public disclosure of such information isn't necessary to serve the public interest. Instead, that information could be protected and analyzed by a single non-government clearinghouse entity to derive broadband coverage and speed capabilities without revealing the more sensitive characteristics of any given network. A neutral, third-party aggregator of infrastructure data can both hold that information tightly and produce accurate and granular coverage maps from it—maps that are much more accurate than the current Form 477 process yields.

Another important function that a clearinghouse entity should play is on-the-ground field validation of coverage in geographic areas that warrant additional scrutiny, as well as areas where federal dollars are being invested to build out new infrastructure. This should involve the deployment of network engineers to visit communities, visually inspect infrastructure assets, conduct drive-testing of wireless networks, and make coverage adjustments to the maps accordingly. The public should also play an important role in providing feedback on the map, and their feedback should be used to both engage providers in refining coverage depictions, as well as helping to determine where field audits should take place.

Through a third-party clearinghouse, the Commission can gain valuable, granular data on broadband availability, validate that information, and protect the proprietary information of the provider community.

#### IV. OTHER ISSUES (NOTICE, SECTION III.C.)

A. The Commission should release data on 25 Mbps download/3 Mbps upload subscriber counts to match the FCC's definition of advanced broadband services (III.C.1.b.)

We believe that in addition to the 200k/200k and 10 Mbps/1 Mbps subscriber counts released at the census tract level, there should also be data released on 25 Mbps/3 Mbps subscriber counts, to match the FCC's definition of advanced broadband services. This data would significantly improve the ability to assist unserved areas in understanding their current and future broadband needs as they work to bring their community up to the level of connectivity recognized by the FCC as "advanced."

B. The Commission should continue to require data submissions on a semi-annual basis, and should have a filing system (or third-party mechanism) that allows the capture of updates as frequently as needed (III.C.2.; ¶¶ 56-57)

Given that the nation's broadband landscape is constantly evolving, we believe that service availability data should continue to be collected on a semi-annual basis, with the option for providers to update their submitted information as frequently as needed.

#### V. CONCLUSION

We appreciate the opportunity to provide comments on this proceeding and we invite further dialogue on this matter so as to ensure that any path forward on broadband data collection

and mapping has the maximum intended effect: to finally enable the closing of the Digital

Divide across the United States – because everyone belongs in a Connected Nation.

Respectfully submitted,

J. Brent Legg Vice President, Government Affairs Connected Nation, Inc. blegg@connectednation.org (202) 340-6446

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